

Glutathione Power and S-Acetyl Glutathione Synergy



Two available forms of the potent antioxidant glutathione

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Glutathione

Glutathione (GSH) is a tripeptide thiol (sulfur-containing) compound molecule that is made inside every cell in the human body. It is composed of the three amino acids L-glutamine, L-cysteine and L-glycine, and is found in the highest levels in the liver, eyes, spleen, pancreas and kidneys. Glutathione is the single most protective antioxidant produced by the body and therefore the most important as it protects cells against the oxidative stress of free radicals. Thus, it protects vulnerable DNA from damage, while helping to bind heavy metals, remove toxins and enhance immune function; it is also especially supportive during viral infections.^{1,2}

Glutathione is also very crucial for proper mitochondrial function and energy production. Chronic illness as well as long term toxic exposure can not only deplete stores of glutathione but also inhibit its production. The body's ability to make glutathione declines with age. In order to correct depleted states, supplementation is necessary and can be optimized with various forms of GSH and its precursors based on an individual's needs.

While IV glutathione administration is the most effective at raising blood levels of GSH, it is also the most expensive and inconvenient. In addition, current research shows that IV glutathione is not the best way to increase intracellular levels of GSH in most cells.³ Studies have shown that plasma GSH increases post-oral GSH supplementation, which may be the result of a combination of intact absorption of GSH, absorption of its three amino acid precursors and/or systemic sparing of GSH due to increased GSH in intestinal cells.^{4,5,6}

**Designs for Health offers two products highlighting glutathione:
Glutathione Power & S-Acetyl Glutathione Synergy**

Glutathione Power

Pure glutathione in powder form

Glutathione Power is offered in powder form and contains 1 gram of glutathione per 1/2 teaspoon.



How to Take

- Take 1 gram per day in water, or as directed by a health care practitioner.
- This product has a mild taste and dissolves quickly in water or other beverages for easy daily intake. Consider adding lime juice to improve palatability. Hold it in the mouth for several seconds before swallowing to allow for mucosal absorption.

Supplement Facts

Serving Size 1 gram (approx. 1/2 teaspoon)

Servings Per Container 50

Amount Per Serving	% Daily Value
L-Glutathione (reduced)	1 g *

*Daily Value not established.

S-Acetyl Glutathione Synergy

Acetylated form of glutathione for optimum absorption and bioavailability

S-Acetyl Glutathione (S-A-GSH) is a unique form of glutathione. With an acetyl group (COCH₃) attached to the sulfur atom of cysteine in the glutathione molecule. S-A-GSH is ideal for oral ingestion, because this acetyl group protects glutathione from breaking down in the gastrointestinal tract; once absorbed and inside the cells it is removed, thus leaving the glutathione molecule intact.

When to choose S-Acetyl Glutathione Synergy

S-Acetyl-Glutathione is ideal for viral conditions and for more intense therapy when higher doses are recommended. Not only has it been shown to remain stable in the gastrointestinal tract, but it also has a longer plasma half-life with improved ability to enter cells and raise intercellular glutathione levels more efficiently.^{3,7}

- **Applicability for higher dosing**

One study demonstrated the advantage of S-A-GSH both in vivo and in vitro as compared to GSH in regards to increasing intracellular levels of GSH. This was shown while keeping plasma concentrations of GSH and S-A-GSH at similar levels. According to this study, "In cell culture, viral infection resulted in a significant decrease of intracellular GSH levels. S-acetyl-GSH efficiently and dose-dependently (5 and 10 mM tested) restored intracellular GSH, and this replenishment was more efficient than with GSH supplementation."³ Therefore, S-A-GSH is the preferred choice of glutathione supplementation when an individual is in need of increasing glutathione levels quickly and efficiently, and when higher doses may be desired.

- **Antiviral**

The same study showed that S-acetyl-glutathione displayed antiviral properties when used in cell and animal models of herpes simplex type 1 (HSV-1) infection by inhibiting viral replication and improving survival better than plain GSH. "In mice, S-acetyl-GSH, but not GSH, significantly decreased HSV-1-induced mortality (P<0.05). The data suggest that S-GSH is a suitable antiviral agent against HSV-1 both in vitro and in vivo, indicating that this drug (sic) may be of benefit in the adjunctive therapy of HSV-1 infections."³

- **Capsule form**

S-Acetyl Glutathione Synergy is offered in capsule form, and may be preferred by some individuals over glutathione powder. Its acetyl group protects glutathione from breaking down in the gastrointestinal tract and reduces the bitter sulfurous smell and taste that accompanies standard GSH.

Additional Highlights of S-Acetyl Glutathione Synergy

N-acetyl-cysteine (NAC) is included in this formula, as this stable form of cysteine supplies important precursors to the production of glutathione. Additionally, in chronic disease, cysteine stores can become depleted, therefore jeopardizing the production of glutathione. Studies have shown that ingestion of glutathione precursors such as N-acetyl-cysteine is an efficient way to support normal glutathione production in some cells, while generally not as efficient as supplementing with S-A-GSH.^{1,8} However, NAC is a great complement to supplementation with S-A-GSH. One study found that NAC supplementation in AIDS-infected cells was more efficient than GSH or S-A-GSH at reducing spleen and lymph node viral content.²

Vitamin B6 is an essential element in enzyme reactions, including the production of glutathione. S-A-GSH raises intracellular levels of GSH by direct absorption inside cells and then it is broken down and re-synthesized, thus increasing the need for vitamin B6.⁹

Supplement Facts

Serving Size 2 capsules

Servings Per Container 30

Amount Per Serving	% Daily Value	
Vitamin B-6 (as Pyridoxal-5-Phosphate)	10 mg	500%
N-Acetyl-Cysteine (NAC)	1 g	*
S-Acetyl Glutathione	200 mg	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), microcrystalline cellulose, vegetable stearate, silicon dioxide.



How to Take

- Take two capsules per day, or as directed by a health care practitioner.

For a list of references cited in this document, please visit:

http://mkt.s.designsforhealth.com/techsheets/S-Acetyl_Glutathione_Synergy_References.pdf

To contact Designs for Health, please call us at (800) 847-8302, or visit us on the web at www.designsforhealth.com.